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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/757,030	01/13/2004	Jun Xie	020859-002610US	3257

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EXAMINER	
BASTIANELLI, JOHN	

ART UNIT	PAPER NUMBER
3751	

DATE MAILED: 03/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

E

Office Action Summary	Application No.	Applicant(s)	
	10/757,030	XIE ET AL.	
	Examiner	Art Unit	
	John Bastianelli	3751	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 January 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) *16-26* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 January 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Since applicant did not provide arguments to the office action filed July 27, 2005 the election is now without traverse. The applicant has the right to pursue a divisional application to the non-elected claims.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Cabuz et al. US 6,837,476.

Cabuz discloses a valve having a substrate 5; a first fluid channel 42 seen as micro as size is relative, disposed on the substrate; a second fluid channel 12 seen as micro, disposed on the substrate made of plastic (which is a polymer); a polymer based diaphragm 20 coupled between the first fluid channel and the second fluid channel; an orifice 25a, 25b disposed within a portion of the polymer diaphragm, the orifice being adapted to provide fluid communication between the first fluid channel and the second fluid channel; a first electrode 30 or 54 coupled to the substrate; a second electrode (col. 5, lines 45-57) coupled to the polymer based diaphragm and separated from the first electrode by the first fluid channel; and a power source coupled between

the first electrode and the second electrode, the power source being adapted to actuate the diaphragm to block fluid communication between the first fluid channel and the second fluid channel through the orifice. The fluid channels contain fluid which is by definition liquid or gas. Cabuz states that the valve may be any size therefore the channel height and diaphragm diameter and thickness are seen as encompassed. The first fluid channel height is different than the second fluid channel. The second electrode is embedded within the diaphragm. The substrate is silicon.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 13-15, and alternatively 4-5 and 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cabuz et al. US 6,837,476 in view of Biegelsen et al. US 5,971,355. Cabuz lacks a mention of what the diaphragm and electrodes are made out of. Cabuz lacks a flow sensor. Biegelsen discloses parylene and electrodes out of aluminum. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the diaphragm of Cabuz out of parylene as disclosed by Biegelsen in order to insulate the valve. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the electrodes of Cabuz out of aluminum as disclosed by Biegelsen in order to provide a lightweight, inexpensive electrode. Biegelsen discloses a flow sensor. It would have

been obvious to one having ordinary skill in the art at the time the invention was made to provide a flow sensor as disclosed by Biegelsen in a channel of Cabuz to provide safeguards for the valve. Biegelsen discloses the valve size in microns. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the valve of Cabuz in microns as disclosed by Biegelsen as it is an obvious matter of design choice to make a device as small or large as needed.

6. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Biegelsen et al. US 5,971,355 in view of Cabuz et al. US 6,837,476.

Biegelsen discloses a valve having a substrate 200; a first fluid channel 203 seen as micro as size is relative, disposed on the substrate; a second fluid channel 226 seen as micro, disposed on the substrate which is formed from plastic; a membrane 210 coupled between the first fluid channel and the second fluid channel; a passageway being adapted to provide fluid communication between the first fluid channel and the second fluid channel; a first electrode coupled to the substrate; a second electrode 216 coupled to the membrane and separated from the first electrode by the first fluid channel; and a power source coupled between the first electrode and the second electrode, the power source being adapted to actuate the diaphragm to block fluid communication between the first fluid channel and the second fluid channel through the orifice. Biegelsen lacks a polymer based diaphragm with an orifice. Cabuz discloses a polymer based diaphragm with an orifice embedded with an electrode. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the membrane of Biegelsen as a polymer based diaphragm with an orifice embedded with an electrode in order to provide better sealing of the valve to the valve seat. The fluid channels contain fluid which is by

definition liquid or gas. Cabuz states that the valve is a microdevice therefore the channel height and diaphragm diameter and thickness are seen as in microns thus encompassing the claimed sizes. The substrate is silicon. Biegelsen discloses using parylene. The electrode is aluminum.

Response to Arguments

7. Applicant's arguments filed January 27, 2006 have been fully considered but they are not persuasive.

8. In response to applicant's arguments, the recitation "for an integrated microfluidic chip" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

9. Regarding applicant's argument that elements 11 and 13 are not polymer layers, this is not the case. Cabuz discloses the body 10 made of elements 11 and 13 are made of plastic (col. 6, lines 18-27) which is a polymer.

10. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., integrated) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

11. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Bastianelli whose telephone number is (571) 272-4921. The examiner can normally be reached on M-F (9:30-7:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Justine Yu can be reached on (571) 272-4835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

John Bastianelli
Primary Examiner
Art Unit 3751

JB
February 23, 2006